UL Product iQ®

BXUV.L702 - Fire-resistance Ratings - ANSI/UL 263

Design/System/Construction/Assembly Usage Disclaimer

- Authorities Having Jurisdiction should be consulted in all cases as to the particular requirements covering the installation and use of UL Certified products, equipment, system, devices, and materials.
- Authorities Having Jurisdiction should be consulted before construction.
- Fire resistance assemblies and products are developed by the design submitter and have been investigated by UL for compliance with applicable requirements. The published information cannot always address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of fire resistance assemblies are advised to consult the general Guide Information for each product category and each group of assemblies. The Guide Information includes specifics concerning alternate materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

Fire-resistance Ratings - ANSI/UL 263

BXUV - Fire Resistance Ratings - ANSI/UL 263 Certified for United States

BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

See General Information for Fire-resistance Ratings - ANSI/UL 263 Certified for United States
Design Criteria and Allowable Variances

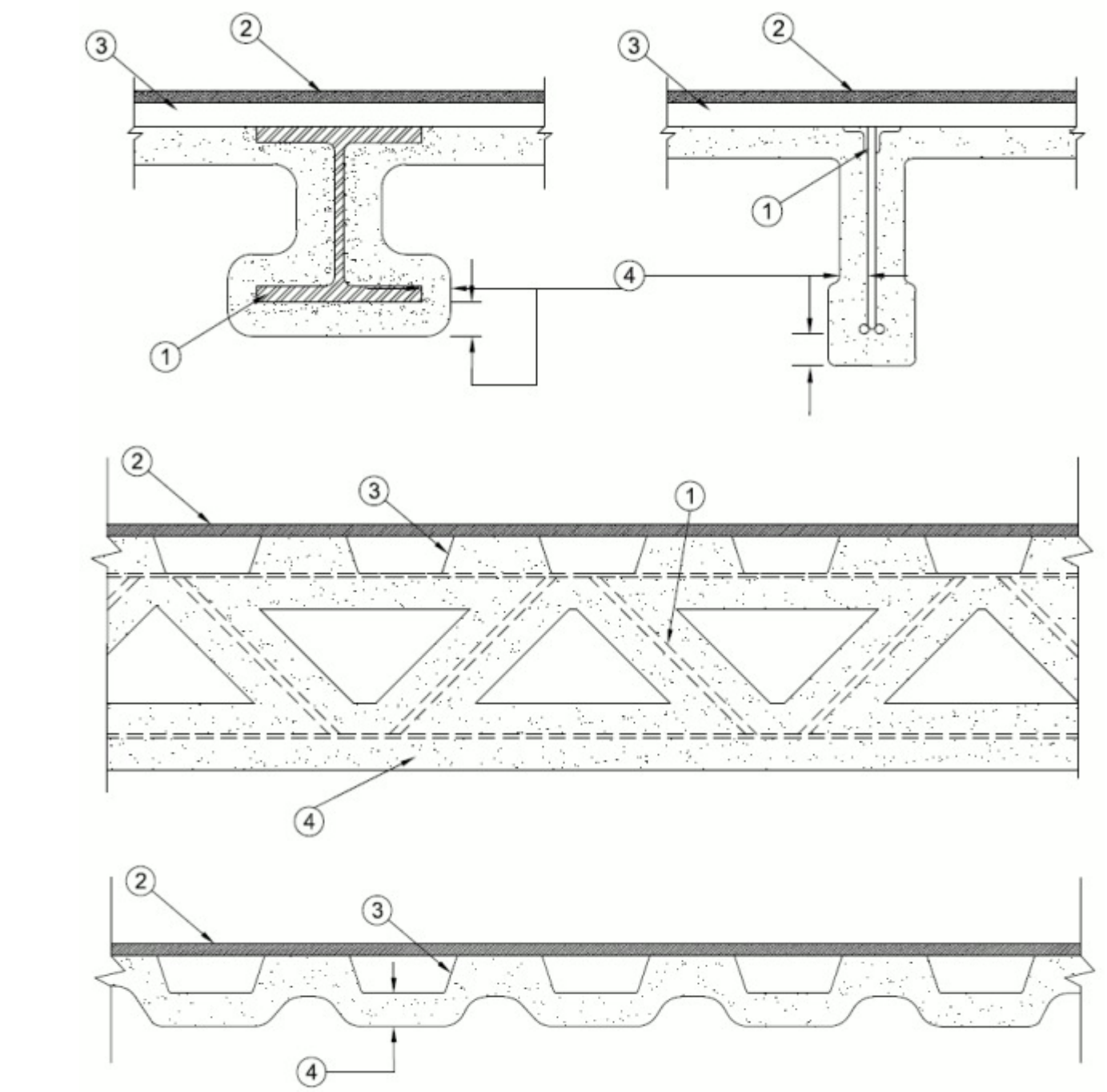
See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada
Design Criteria and Allowable Variances

Design No. L702

August 01, 2022

Restrained Assembly Ratings — 1, 1-1/2, and 2 Hr (See Item 4)
Unrestrained Assembly Ratings — 1, 1-1/2, and 2 Hr (See Item 4)
Unrestrained Beam Ratings — 1, 1-1/2, and 2 Hr. (See Item 4)
Restricted Load Condition — See Item 1
This design was evaluated using a load design method other than the Limit States Design Method (e.g., Working Stress Design Method). For jurisdictions employing the Limit States Design Method, such as Canada, a load restriction factor shall be used — See Guide BXUV or BXUV7

*** Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.**



1. **Steel Supports —** Min W6x16 or W8x28 or Steel Joist — 10K1 or 16K2 min size with a max tensile stress of 30,000 psi or 12K3 or 12K5 min size with a max tensile stress of 24,000 psi.

2. **Building Units* —** 3/4 in. thick wood fiber boards fastened to the steel deck according to the manufacturer's installation instructions.
CORNERSTONE SPECIALTY WOOD PRODUCTS LLC — Types ResinDek LD, ResinDek MD, ResinDek SD, ResinDek HD

3. **Steel Roof Deck —** (Unclassified) — Min 1-1/2 in. deep and 36 in. wide galv fluted steel deck. Min gauge is No. 22 MSG. Ends overlapped at supports a min 1-1/2 in. and welded to supports 12 in. OC and at side laps. Side laps fastened with 1/2 in. long hex head, self-drilling, self-tapping steel screws spaced a max of 36 in. OC.

3A. **Steel Floor and Form Units* —** (As an alternate to Item 3) Noncomposite 1-1/2 to 3 in. deep, 24 to 36 in. wide, min 22 MSG galvanized steel fluted units. Ends overlapped at supports a min 1-1/2 in. and welded to supports 12 in. OC and at side laps. Side laps fastened with 3/4 in. long No. 12 self-drilling, self-tapping steel screws at 36 in. OC. As alternate to screw fasteners adjacent units may be button-punched or welded together 36 in. OC along side joints.

ASC STEEL DECK, DIV OF ASC PROFILES L L C — Types BH-36, BHN-36, BHN-35-1/4, DGB-36, B-36, BN-36, BN-35-1/4, NH-32, NHN-32, DGN-32, N-32 and NN-32. All units may be galvanized or Prime Shield™. Non-cellular decks may be vented designated with a "V" suffix to the product name.

CANAM GROUP INC — Type P-3606, P-3615, P-2436, and P-2404 noncomposite; 36 in. wide Types 1.5B, 1.5BI; 24 in. wide Types 3N, 3NI.

CANAM STEEL CORP — Types B, F, N. Units may be phos./ptd or ptd/ptd.

NEW MILLENNIUM BUILDING SYSTEMS L L C — Types B, BD, BI, F, FD, N, ND, NW32, and NW32I. Units may be phos/painted, ptd/ptd, or galvanized. Painted units may be used for ratings up to 2 h.

VERCO DECKING INC - A NUCOR CO — Deck types PLB, HSB, PLN3, HSN3, PLN, N; FORMLOK™ deck types PLB, B, PLN3, N3, PLN, N. Units may be galvanized or phos./ptd. Deck may be vented or non-vented.

VULCRAFT, DIV OF NUCOR CORP — Types BW, F, High Strength B, High Strength BW, N, ptd/ptd units may be used for ratings up to 2 h.

VULCRAFT, DIV OF NUCOR CORP — Galv Types 1.5B, 1.5BI, 1.5PLB, 1.5F, 3N, 3NI, 3.0PLN, 3NL-32, 3NI-32, 3PLN-32, ptd/ptd units may be used for ratings up to 2 h.

4. **Spray-Applied Resistive Material* —** Applied by mixing with water and spraying in more than one coat to final thicknesses as shown in the illustration above and in the table below to steel surfaces which must be clean and free of dirt, loose scale and oil. Steel deck surface must be "spatter" coated with Type SK-3 Spray-Applied Fire Resistive Materials prior to application of spray-applied resistive material. Type SK-3 spray-applied resistive material applied in accordance with the manufacturer's application instructions. When steel deck is used the area between the steel deck and the beams top flange shall be filled. Min average and min individual density of 15/14 pcf, respectively. For method of density determination, see Design Information Section. Thickness of the spatter coat is included in the total final thickness of the protection material.

Restrained And Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Steel Deck Thickness	Beam Thickness	
			Full Flange W8x28 Beam	1/2 Flange W8x28 Beam
1	1	1-5/8	7/16	1/2
1-1/2	1-1/2	2-1/8	5/8	13/16
2	2	2-5/8	7/8	1-1/16

When the thickness applied to the lower flange edges is reduced by one half, the 1/2 flange thickness is applicable.

Restrained And Unrestrained Assembly Rating Hr	Steel Deck Thickness	Unrestrained Beam Rating Hr	W6x16 Beam Thickness
1	1-5/8	1	9/16
1-1/2	2-1/8	1-1/2	13/16
2	2-5/8	2	1-1/16

Restrained And Unrestrained Assembly Rating Hr	Unrestrained Beam Rating Hr	Steel Deck Thickness	Joist thickness 10K1 more than 4 ft OC	10K1 less than 4 ft OC	16K2 more than 4 ft OC	16K2 less than 4 ft OC
1	1	1-5/8	1-1/8	1	15/16	15/16
1-1/2	1-1/2	2-1/8	1-7/16	1-7/16	1-1/4	1-3/16
2	2	2-5/8	2-3/16	2-3/16	1-9/16	1-1/2

GCP APPLIED TECHNOLOGIES INC — Types MK-6/HY, MK-6/HB, MK-10 HB, MK-10 HB Extended Set, MK-1000/HB, MK-1000/HB Extended Set, RG, and SK-3.

4A. **Alternate Spray-Applied Fire Resistive Materials* —** Applied by mixing with water and spraying in one or more coats to final thicknesses as shown in the table below to steel beam surfaces which must be clean and free of dirt, loose scale and oil. When Type Z-106/G is used, the steel deck surface must be "spatter" coated with Type SK-3 Spray-Applied Fire Resistive Materials prior to application of spray-applied resistive material. Type SK-3 spray-applied resistive material applied in accordance with the manufacturer's application instructions. When steel deck is used the area between the steel deck and the beams top flange shall be filled. Min avg and min ind density of 22/19 pcf, respectively. For method of density determination, refer to Design Information Section.
GCP APPLIED TECHNOLOGIES INC — Types Z-106, Z-106G, Z-106/HY.

4B. **Alternate Spray-Applied Fire Resistive Materials* —** Applied by mixing with water and spraying in one or more coats to final thicknesses as shown in the table below to steel beam surfaces which must be clean and free of dirt, loose scale and oil. When steel deck is used, the area between the steel deck and the beams top flange shall be filled. Application to steel roof deck requires the installation of expanded metal lath. See Item 6A. Min avg and min ind density of 40/36 pcf respectively for Types Z-146, Z-146PC and Z-146T cementitious mixture. Min avg and min ind density of 50/45 pcf respectively for Types Z-156, Z-156T and Z-156PC. For method of density determination, refer to Design Information Section.
GCP APPLIED TECHNOLOGIES INC — Type Z-146, Z-146T, Z146PC, Z-156, Z-156T and Z-156PC investigated for exterior use.

5. **Nonmetallic Fabric Mesh —** (Optional) — As an alternate to the optional use of metal lath, glass fiber fabric mesh, weighing approx 2.5 oz/sq yd, polypropylene fabric mesh, weighing approx 1.25 oz/sq yd or equivalent, may be used to facilitate the spray application. The mesh is secured to one side of each joist web member. The method of attaching the mesh must be sufficient to hold the mesh and the spray applied Spray-Applied Fire Resistive Materials material in place during application until it has cured. An acceptable method to attach the mesh is by embedding the mesh in min 1/4 in. long beads of hot melted glue. The beads of glue shall be spaced a max of 12 in. OC along the top chord of the bar joist. Another method to secure the mesh is by 1-1/4 in. long by 1/2 in. wide hairpin clips formed from No. 18 SWG or heavier steel wire.
The method of attaching the mesh must be sufficient to hold the mesh and the spray applied Spray-Applied Fire Resistive Materials material in place during application until it has cured. An acceptable method to attach the mesh is by embedding the mesh in min 1/4 in. long beads of hot melted glue. The beads of glue shall be spaced a max of 12 in. OC along the top chord of the bar joist Another method to secure the mesh is by 1-1/4 in. long by 1/2 in. wide hairpin clips formed from No. 18 SWG or heavier steel wire.

6. **Metal Lath —** (Not Shown) — (Optional) — Metal lath may be used to facilitate the spray application of Spray-Applied Fire Resistive Materials on steel bar joists and trusses. The diamond mesh, 3/8 in. expanded steel lath, 1.7 to 3.4 lb/sq yd is secured to one side of each steel joist with No. 18 SWG galv steel wire at joist web and bottom chord members spaced 15 in. OC max. When used, the metal lath is to be fully covered with Spray-Applied Fire Resistive Materials with no min thickness requirements.

6A. **Metal Lath —** (Not Shown) — (Required with Item 4B, otherwise optional) — Metal lath shall be 3/8 in. expanded diamond mesh, weighing 2.5 lb per sq yd. Secured to underside of steel deck with No. 12 by 3/8 in. pan head self-drilling, self-tapping screws and steel washers with an outside diam of 1/2 in. screws spaced 12 in. OC in both directions with lath edges overlapped approx 3 in.

6B. **Metal Lath —** (Not Shown) — (Required on both sides of joists with Z-146, Z-146T, Z146PC, Z-156, Z-156T and Z-156PC, otherwise optional) — Metal lath may be used to facilitate the spray application of Spray-Applied Fire Resistive Materials on steel bar joists and trusses. The diamond mesh, 3/8 in. expanded steel lath, 1.7 to 3.4 lb/sq yd is secured to one side of each steel joist with No.

18 SWG galv steel wire at joist web and bottom chord members spaced 15 in. OC max. When used, the metal lath is to be fully covered with Spray-Applied Fire Resistive Materials with no min thickness requirements.

7. **Bridging —** (Not Shown) — Min 1-1/4 by 1-1/4 by 1/8 in. thick steel angles welded to top and bottom chords of each joist. Number and spacing of bridging angles per Steel Joist Institute specification. Bridging coated with the same thickness of Spray-Applied Fire Resistive Materials as the joist to a min distance of 12 in. beyond each side of the joist.

8. **Sprayed Fiber* —** (Optional, Not Shown) Sprayed Fiber, Classified for Surface Burning Characteristics (BNST), having a maximum applied density of 3.5 pcf applied over Spray-Applied Fire Resistive Material (Item 4 through 4B) on Steel Roof Deck or Steel Floor and Form Units (Items 3 and 3A) and Steel Supports (Item 1) in accordance with the following tables:

Allowable Sprayed Fiber Thickness over SFRM applied to Steel Roof Deck or Steel Floor and Form Units (Items 3 and 3A)

Installed SFRM Thickness (in.) on Deck	SFRM Density (lb/ft^3)			
	15	22	40	50
	Sprayed Fiber Thickness (in.)			
1-5/8	4-5/16	6-5/16	8	8
2-1/8	2-1/8	3-1/8	2-7/8	3-9/16
2-5/8	0	0	0	0

Allowable Sprayed Fiber Thickness over SFRM applied to Beams (Item 1)

Installed SFRM Thickness (in.) on Beam	SFRM Density (lb/ft^3)			
	15	22	40	50
	Sprayed Fiber Thickness (in.)			
7/16	8	8	8	8
1/2	8	8	8	8
9/16	8	8	8	8
5/8	8	8	8	8
13/16	8	8	8	8
7/8	8	8	8	8
1-1/16	8	8	8	8

Allowable Sprayed Fiber Thickness over SFRM applied to Joists (Item 1)

Installed SFRM Thickness (in.) on Joist	SFRM Density (lb/ft^3)			
	15	22	40	50
	Sprayed Fiber Thickness (in.)			
15/16	8	8	8	8
1	8	8	8	8
1-1/8	8	8	8	8
1-3/16	8	8	8	8

1-1/4	8	8	8	8
1-7/16	7-3/4	8	8	8
1-1/2	7-1/2	8	8	8
1-9/16	7-1/4	8	8	8
2-3/16	4-9/16	6-11/16	8	8

INTERNATIONAL CELLULOSE CORP — Type K13, URE-K, or SonaSpray FC

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Last Updated on 2022-08-01
